



# ***CalPoly 2010 CubeSat Workshop***

## ***Project ELaNa and NASA's CubeSat Initiative***

### ***Garrett L. Skrobot Launch Services Program***

**John F. Kennedy Space Center  
Flight Projects Office**





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During the 2006 Small Satellite the following statement was stated:

***“There are no funds available for Small Payloads from NASA”***

*Was this really true?*

*Maybe then, but times have changed*





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- In 2007 LSP Management gave direction to go forward and investigate how NASA can fly the PPOD system on ELVs
- Over the next three years the LSP PPOD team has worked to identify launch vehicles where PPODs could be integrated
  - The biggest thing was that FUNDING was provided to pursue the integration of a PPOD
- So were we successful in securing PPOD/CubeSat launches?





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After many beatings and healing of scars,  
I can say... ***YES!***

On January 6 2010, the NASA Flight Planning Board  
approved the manifesting of the first educational  
PPOD mission containing three University CubeSat

*This PPOD Mission is called **ELaNa***





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Jan 10 FPB Manifest ELaNa

## Path to the Flight Planning Board







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## ***ELaNa - Education Launch of Nanosatellite***

### ***Mission Statement "Launching Education into Space"***

#### ***First ELaNa Mission***

- Montana State University***
- University of Colorado, Boulder***
- Kentucky Space***

***Backup – University of Florida***



***Launch Date November 22, 2010 on a Taurus XL carrying  
the SMD Glory Spacecraft***





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Now that we have our first educational PPOD manifested, what's next?

The ELaNa mission has been transformed into Project ELaNa

Currently the LSP PPOD team is working the recurring Engineering on Delta II for a possible three PPOD mission in Sept 2011

Studies are under way for an eight PPOD mission in December 2012





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Now that we have our first educational PPOD manifested, what's next?

Work is under way for the potential additional PPOD mission in the late 2011 and early 2012 time periods

With these possible opportunities, how will NASA determine and select CubeSat for these missions?





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## ***Announcement of CubeSat Launch Initiative February 23, 2010***

The National Aeronautics and Space Administration (NASA) Space Operations Mission Directorate (SOMD) anticipates that launch opportunities for a limited number of CubeSats may be available on launches currently planned for 2011 and 2012. These launch opportunities would constitute a pilot project intended to demonstrate viable launch opportunities for CubeSat payloads as auxiliary payloads on planned missions.

**Response Date: Apr 15, 2010**

**Selection Notification: Selection is anticipated by June 30, 2010.**

***I hope that every CubeSat project submitted!***





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*So, What does this mean to the CubeSat community?*

NASA is working to provide a sustainable Educational CubeSat flight project with a sustainable flight rate

Once all the proposals are reviewed, this will tell NASA of the CubeSat demand needing launch opportunities

Knowing the demand will tell NASA which direction to pursue in securing PPOD flights





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What are the current estimates for possible flight opportunities for PPODs to maintain sustainability?

	FY11	FY12	FY13	FY14
# of PPODs	1 to 4	9	8 - 10	8 - 10

My question to the community is if NASA secures these opportunities, will there be CubeSats there to fly?





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## *Requirements*

### *LSP-REQ- 317.01 Rev Basic*

*Launch Services Program Level Poly Picosatellite Orbital Deployer (PPOD) and CubeSat Requirements Document*

*If you want to fly on a NASA ELV then you will need to meet the requirement in this document*

*At this point in time there are no waivers for these requirements – We can make changes but they will need to go to NASA ERB*

*There will be a splinter meeting to discuss these requirements and what they mean on the last day of the workshop*





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## *PPOD/CubeSat Challenges*

**Convincing the Mission Directories and Primary Mission that the PPOD/CubeSat have been well analyzed/tested and the mission risk is at base line**

**CubeSat being ready and on time to fly on the day of launch**

**Understanding of what is required from the CubeSat in the verification of ICD requirements**

**Knowing that they are the auxiliaries and not a primary**

**Funding, there are costs associated with integrating a PPOD/CubeSat mission on to the launch vehicle and for Educational CubeSat the cost is \$30K**





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- *January 26, 2010* NASA Press Release for the First ELaNa Mission
- *February 23, 2010* NASA Releases the CubeSat Initiative requesting proposals
- *February 26, 2010* NASA Watch story on CubeSats
  - *“NASA Still Can't Get That Metric Stuff Right”*
    - » *Otherwise: this is a very cool program.*
- *March 17, 2010* Space News Article on NASA's CubeSat
  - *“With Upcoming Mission, CubeSats Poised for Takeoff at NASA”*





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*Currently there is support and momentum  
at NASA HQ for Educational PPOD and  
CubeSats missions*

*We need to keep to it moving in the  
right direction,*

*On Orbit!*





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*Questions?*